CLAIMS

1) Method for equalizing symbols received from a transmission channel and for decoding data therefrom, characterised in that it performs either a first processing comprising a turboequalizing sequence on the received symbols or a second processing comprising an equalizing step followed by a turbodecoding sequence, the selection of the first or the second processing being made upon an estimation of the delay spread of the transmission channel.

2) Method as claimed in claim 1, characterised in that the first processing is chosen when the value of the delay spread of the transmission channel is high and the second processing is chosen when said the value of the delay spread is low.

3) Method as claimed in claim 2, characterised in that the first processing is selected when the value of said delay spread rises above a first threshold and the second processing is selected when the value of the delay spread falls under a second threshold.

4) Method as claimed in claims 1, 2 or 3, characterised in that the turboequalizing sequence includes the iteration of a soft equalizing step according to an APP type algorithm, a deinterleaving step and a soft decoding step.

5) Method as claimed in claim 4, characterised in that the APP type algorithm is a List-type APP algorithm.

6) Method as claimed in claims 4 or 5, characterised in that the number of states of the APP trellis is equal to M^{J-1} where M is the modulation alphabet size used over the transmission channel and J is a strictly positive integer which is chosen according to a characteristic of the transmission channel.

7) Method as claimed in claim 6, characterised in that J is chosen higher than the value of said delay spread if the transmission channel is affected by fast fading.

8) Method as claimed in claim 6, characterised in that J is chosen lower that the value of said delay spread if the propagation involves a Line of Sight component.

9) Method as claimed in claims 6, characterised in that J is chosen according to the power profile of the channel impulse response.

10) Method as claimed in claims 7,8 or 9, characterised in that said soft decoding step is based upon an APP type algorithm involving 2^{K-1} states, K being increased when J decreases and K being decreased when J increases.

11) Method as claimed in claims 7,8,9 or 10, characterised in that K is determined as the highest integer for which $a.2^{K-1} + b.M^{J-1}$, where a and b are fixed coefficients, is lower than a predetermined resource value.

12) Method as claimed in claims 7,8,9 or 10, characterised in that at least one of K and N, the number of iterations of the turbo-equalizing sequence is adapted so that $N(a.2^{K-1} + b.M^{J-1})$, where a and b are fixed coefficients is lower than a predetermined resource value.

13) Method as claimed in claims 1, 2 or 3, characterised in that the turboequalizing sequence includes the iteration of a soft equalizing step including a filtering step for cancelling the intersymbol interference over the transmission channel, the filter having L taps where L is a variable parameter given by the delay spread of the transmission channel, a deinterleaving step and a soft decoding step.

14) Method as claimed in claim 13, characterised in that said soft decoding step is based upon an APP type algorithm involving 2^{K-1} states where K is chosen as the highest integer for which $a.2^{K-1} + b'.L$, where a and b' are fixed coefficients, is lower than a predetermined resource value.

15) Method as claimed in claim 13, characterised in that at least one of K and N, the number of iterations of the turbo-equalizing sequence, is adapted so that $N.(a.2^{K-1} + b'.L)$, where a and b' are fixed coefficients is lower than a predetermined resource value.

16) Method for coding data, characterised in that it performs either a first processing comprising a coding step followed by an interleaving step or a second processing including a turbocoding step for turbocoding said data, the choice of the first or the second processing being made upon an information over the delay spread of the transmission channel.

17) Method for coding data as claimed in claim 16, characterised in that the coding step uses a convolutional code having a variable constraint length.

18) Receiver comprising means for carrying out the method claimed in any of claims 1 to 15.

19) Transmitter comprising means for carrying out the method claimed in claim 16 or 17.

20) Telecommunication system comprising a transmitter as claimed in claim 19 and a receiver as claimed in claim 18, the receiver sending back to the transmitter said information relative to the delay spread of the transmission channel.

21) Telecommunication system as claimed in claim 20, characterised in that the transmitter comprises a convolutional coder whose constraint length is increased or decreased upon a request from the receiver.